

What is claimed is:

1. A vacuum fluorescent display comprising:
  - 2 a cathode electrode for emitting electrons;
  - 3 a grid electrode for extracting the electrons
  - 4 from said cathode electrode;
  - 5 an anode electrode for accelerating the
  - 6 electrons extracted from said cathode electrode;
  - 7 at least one envelope which accommodates said
  - 8 cathode electrode, said grid electrode, and said anode
  - 9 electrode in a vacuum space and has a display portion
  - 10 having light transmission properties;
  - 11 a phosphor layer formed on an inner surface of
  - 12 the display portion of said envelope and adapted to emit
  - 13 light upon bombardment of the electrons accelerated by
  - 14 said anode electrode; and
  - 15 a cap made of an X-ray shielding material and
  - 16 supported outside said envelope so as to surround the
  - 17 display portion of said envelope through a gap, said cap
  - 18 having a light exit surface from which the light emitted
  - 19 from said phosphor layer emerges through the display
  - 20 portion of said envelope.
2. A display according to claim 1, wherein said
- 2 cap is made of lead glass having light transmission
- 3 properties.

3. A display according to claim 1, further  
2 comprising a cooling liquid sealed in the gap.

4. A display according to claim 1, wherein said  
2 cathode electrode contains carbon nanotubes.

5. A display according to claim 1, wherein said  
2 cap comprises

3 a cylindrical portion made of an X-ray  
4 shielding material containing lead glass having light  
5 transmission properties, and  
6 a front surface glass member made of  
7 translucent lead glass having light transmission  
8 properties and fitted in one opening of said cylindrical  
9 portion corresponding to the display portion of said  
10 envelope.

6. A display according to claim 1, wherein said  
2 cap surrounds said envelope entirely.

7. A display according to claim 6, wherein  
2 said envelope has a stem in which a plurality  
3 of lead pins to be connected to said electrodes are  
4 buried and which has an outer diameter slightly larger  
5 than that of said envelope, and  
6 a portion between a tip of an opening of said  
7 cap and said envelope is sealed by the stem to form the

8 gap.

8. A display according to claim 7, wherein said  
2 stem is made of an insulating elastic material.

9. A display according to claim 7, further  
2 comprising  
3 a cooling liquid sealed in the gap, and  
4 a liquid reservoir formed in the stem to  
5 communicate with the gap.

10. A display according to claim 1, wherein  
2 said envelope comprises a plurality of  
3 envelopes corresponding to a plurality of colors, and  
4 said cap surrounds display portions of the  
5 plurality of envelopes all together.

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